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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,006	09/14/2000	Patrick K Sullivan	OCEANIT	9060

20350 7590 12/18/2002

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EXAMINER

MALLARI, PATRICIA C

ART UNIT PAPER NUMBER

3736

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/662,006

Applicant(s)

SULLIVAN ET AL.

Examiner

Patricia C. Mallari

Art Unit

3736

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-11,16-19,26,28,30-34,37,40,45 and 47-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-11,16-18,26,28,32,33,37,39,40,47,48,52,55,56 and 58-72 is/are rejected.
- 7) ☒ Claim(s) 30, 31, 45, 49, 50, 51, 53, 54, and 57 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10,14 6) ☐ Other:

Information Disclosure Statement

The information disclosure statement filed 9/10/02 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-11, 16-18, 26, 28, 32, 33 37, 39, 40, 47, 48, 52, 55, 56, 58, 61-67, and 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scanlon et al. in view of Sepponen. Scanlon teaches a sensor pad 12 defining a fluid-filled chamber 11 with an acoustic transducer 14, which may be any pressure and motion sensor. Signal processing and output system 15 receives output signal 28 from transducer 14, processes the signal, which processing may include FFT or wavelet-based analysis, and provides an output 30 that is fed to a display and storage media. More than one transducer can be employed using various array and noise canceling techniques. For example, sensor pad 12 may be disposed on the bottom of a crib 56 and a microphone 81 may be attached externally of the pad. Signal processor 15 may compare the sounds from the microphone 81 and the transducer 14 to use adaptive

noise reduction techniques to remove airborne sounds that couple with pad 14. A reference transducer 132 may also be placed at any suitable location, such as within the pad 14, but acoustically isolated from the chamber containing transducer 14. The difference between the reference 132 output and the main transducer 14 output would be the patient's contribution, free of ambient noise. A plurality of transducers 14 may also be placed within the pad for focused or sectional monitoring, where each transducer is monitored individually or selectively or a combined output is monitored.

Band pass filtering of the transducer signal 28 by processor 15 can separate heartbeats, breaths, vocalization, and motion, enabling the apparatus to monitor parameters such as heart and respiratory rates and changes in heart rate variability.

Sensor pad 12 may be carried on or built into any type of medical transport device, such as a gurney or stretcher (figs. 1-4, 15, 16, 22, 23, and 25). Scanlon lacks piezoelectric film as both its transducers.

However, Sepponen discloses a transducer T, which may be PVDF film, fitted to a support S, for sensing the movement and heart rate of a person P. The output signal of T is amplified by amplifier A, converted into digital form, and then converted into the frequency domain by an FFT algorithm (fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the transducers of any of the embodiments of the sensor pad of Scanlon et al. with the transducer of Sepponen since Scanlon teaches using a pressure and motion sensor, and Sepponen describes such a sensor.

Claims 1, 4-11, 16-18, 26, 28, 32, 33 37, 39, 40, 47, 48, 52, 55, 56, 58, 61-67, and 69-71 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Scanlon et al. in view of Sepponen as applied to claims 1, 4-11, 16-18, 26, 28, 32, 33 37, 39, 40, 47, 48, 52, 55, 56, 58, 61-67, and 69-71 above, and further in view of Neukermans. In several embodiments, Scanlon, as modified, teaches a microphone or transducer used to detect environmental signals to cancel them from the main transducer signal, but does not expressly disclose the construction of the microphone. However, Neukermans teaches a hearing aid 10 including microphones 28. Microphones 28 consist of a very thin sheet of polyvinylidene fluoride or PVDF (fig 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Scanlon et al. in view of Sepponen using the microphone of Neukermans since Scanlon, as modified, teaches using a microphone, and Neukermans describes such a microphone.

Claims 59, 60, 68, and 72 are rejected as being unpatentable over Scanlon et al. in view of Sepponen as applied to claims 1, 4-11, 16-18, 26, 28, 32, 37, 39, 40, 47, 48, 52, 55, 56, 58, 61-67, and 69-71 above. Scanlon, as modified, describes a sensor pad 12 with a plurality of transducers 14 with the pad but is silent as to the exact number of transducers included within the pad (fig. 3). Scanlon, as modified, also fails to expressly disclose the shape of the transducer. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to include a specific number of 32 transducers in the sensor pad of Scanlon, as modified, because the applicant has not disclosed that the specific number of 32 transducers provides an

advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the invention of Scanlon, as modified, to perform equally well with any number of a plurality of transducers. Therefore, it would have been an obvious matter of design choice to modify the sensor pad of Scanlon et al. in view of Sepponen to obtain the invention as specified in claims 59, 68, and 72.

Additionally, it would have been an obvious matter of design choice to a person of ordinary skill at the time of invention to make the transducers of Scanlon, as modified, rectangular, because the applicant, similarly has not disclosed that the specific shape of the transducer provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would also have expected the sensor pad of Scanlon, as modified, to perform equally well with transducers of any shape. Therefore, it would have been an obvious matter of design choice to modify the sensor pad of Scanlon et al, in view of Sepponen to obtain the invention as specified in claim 60.

Response to Arguments

Applicant's arguments with respect to claims 1, 4-11, 16-19, 26, 28, 30-34, 37, 39, 40, 45, 47-56 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

Claims 30, 31, 45, 49, 50, 51, 53, 54, and 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,479,932 to Higgins et al.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia C. Mallari whose telephone number is (703)

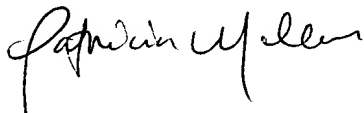
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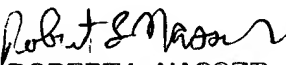
605-0422. The examiner can normally be reached on Mon-Fri 9:30 am-7:00 pm
(alternate Fri. off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max F. Hindenburg can be reached on (703) 308-3130. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8117 for regular communications and (703) 305-3590 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0858.

pcm
December 16, 2002




ROBERT L. NASSER
PRIMARY EXAMINER